



Effectiveness of Sports Activities on Cognitive Emotion Regulation Strategies, Perceived Psychological Stress, and Psychological Hardiness of Veterans and the Disabled

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ABSTRACT

Aims Adequate physical activity and mobility positively affect the mental health of people, especially people with special needs. This study aimed to investigate the effectiveness of sports activities on cognitive emotion regulation strategies, perceived psychological stress, and psychological hardiness of veterans and the disabled.

Instrument & Methods This descriptive study was conducted in 2021 on veterans and the disabled in Yazd, Iran. the number of 100 people (50 athletes and 50 non-athletes) selected by the convenience sampling method. The Cognitive Emotion Regulation Strategies Scale, the Perceived Stress Scale, and the Ahvaz Psychological Hardiness Questionnaire examined research variables. Data were analyzed using the analysis of variance test through SPSS 25 software with the one-way ANOVA.

Findings There was a significant relationship between the perceived physiological stress, uncompromising emotion regulation strategies, and psychological hardiness in athletes and non-athletes' veterans and disabled ($p \leq 0.05$). There was no significant difference in adapted emotion regulation strategies between the two groups ($p > 0.05$).

Conclusion The results showed lower scores in perceived stress and uncompromising strategies of emotion regulation and a higher score of psychological hardiness in athletes' veterans and disabled

Keywords Mental aspects; Veterans and Disabled; Athletes

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Introduction

In recent years, the emergence of natural disasters and wars has led to a growing number of people with disabilities around the world [1]. According to research, disability means the inability to perform all or part of the daily activities of an individual or social life, which is caused physically or mentally due to congenital disabilities or a complication by an event and prevents a person from performing essential affairs of life [2, 3]. Indeed, the physical problems of people with disabilities cause difficulty in movement and lead to stress and disorders in social functioning, and prevent the social role that is expected from an individual according to age, gender, and cultural conditions [4]. It should be noted that disability has a social aspect, in addition to the medical aspect and the problems of the disabled are not only due to mental and physical conditions but also due to the wrong attitude of society and lack of social support, which disrupts their participation in social affairs and living without reliance on others. Research shows that interaction and communication between people with disabilities in society are much lower than others. It can create lower self-esteem and self-confidence in them and cause them to experience more stress than normal people, which affects their quality of life [4, 5].

The concept of perceived stress is retrieved from Lazarus and Folkman's theory on the role of evaluation in the stress process, which is created by interpreting an event as an event that imposes stress on the person [6]. Perceived physiologic stress indicates how challenging and threatening people find stressful events derived from environmental and individual factors. Both factors are important in understanding stressors because influential situational factors provide a background for the situation. Individual factors are the elements that people show concerning the situation, and perceiving these two factors, leads to the assessment of stressful or non-stressful situations [7, 8].

One of the variables related to physiological stress that can effectively deal with stress and anxiety sources is psychological hardiness [9]. Psychological hardiness is defined as a skill that prepares a person to face life's problems and creates a special inside attitude that makes the person realistically consider the stressors and face them with more power [10]. Hardy people are more resilient to anxiety and can solve interpersonal challenges and stresses based on cognitive assessment and use it as a source of resistance, such as a protective shield in the face of accidents [11, 12]. In this regard, Loher considers flexibility, responsiveness, strength, and emotional resilience as the emotional characteristics of stubborn people, and he believes these skills can be learned. Separate studies have reported that high levels of mental hardiness help a person use positive emotions to overcome unpleasant experiences and return to the desired state [13]. Current theories see

mental hardiness as a multidimensional, environmentally influenced trait. Researchers believe that regulating emotion is a key component of hardiness [14]. Studies emphasize that the quality of behavior is a result of stress and what predicts mental health is how a person assesses stress and how to deal with it. Emotion regulation plays an important role in adapting to stressful life events [15]. One of the vulnerable psychological processes in veterans and disabled and the disabled are related to their emotional processes, which includes all conscious and unconscious strategies used to increase, maintain, or decrease an emotional response's emotional, behavioral, and cognitive components [16]. Based on the studies, people use different emotion regulation strategies to modify their emotional experience facing stressful events, which is discussed under adaptive and maladaptive strategies [13, 17]. Studies have shown that effective emotion regulation strategies are an important resource, which modifies the levels of stressors, disability in unpleasant situations, and the negative effects of stressors, and this can be an influential factor in managing stress and controlling emotions, increasing self-confidence, stability, recovery after failure, and resilience, which according to theoretical principles are the characteristics of hardy people [13].

So, this can affect the quality of life of veterans and disabled and the disabled, considering many problems and their need for more social support due to their special circumstances and difficulties coping with the current situation [4]. Due to the increasing number of mental disorders, the identification of factors affecting mental health and effective factors in its prevention and improvement has been considered by many researchers [5]. One of the topics that have recently been considered to improve psychological factors is the role of exercise and physical activity. Physical activity and adequate mobility, especially in the disabled, positively affect psychological issues. They are the non-pharmacological treatments that can play an effective role in improving veterans and disabled and the disabled [4]. In the current situation, physical activities for people with special needs, especially veterans and disabled and the disabled, have acquired special importance, and as one of the individual and social manifestations, while maintaining the survival, mental, and physical health of society has been considered to properly performing individual, family, and social roles and improve quality of life [5, 18]. Physical activity and exercise help a person's mental health by reducing stress and anxiety, improving the socialization process, increasing self-confidence, self-esteem, and improving self-efficacy and mood [5, 19]. Doing sports activities has a decisive role in transferring the disabled to the adaptation period and teaching them how to live and cope with various conditions [20] and

can reduce the amount of different psychological, social, economic, and cultural costs of the disabled and can be used as an important factor for public welfare, recovery and psychological well-being of people with disabilities [5].

Some studies show that psychological factors of people participating in exercise activities are better than non-athletes. For example, Seyedahmadi *et al.* in a meta-analysis showed that the mental health status of athletes is better than non-athletes [21]. Also, Acosta *et al.* showed the difference in perceived stress between athletes and non-athletes [22]. Benjamin & John show that mental toughness mediated the relationship between perceived stress and anxiety, and this mediation is stronger in athletes [23]. However, the results of Vaughan *et al.* showed higher hardiness in athletes than non-athletes [24], while Dirmanchi *et al.* Did not find a difference between resilience in the two groups of disabled athletes and non-athletes [25]. Also, although some studies such as Akbarzadeh *et al.* have reported significant differences in emotion regulation of athletes and non-athletes [26], the results of Amiri *et al.* on the difficulty of emotion regulation did not show a significant difference between athletes and non-athletes except in the component of purposeful behavior [27]. In recent years, the effects of exercise and physical activity on some psychological factors have been studied, and contradictory results have been found in this regard. Also, the successes of the athlete disabled and veterans and disabled in recent years show that this group has a very high potential. More attention needs to be paid to this issue; however, the research in this field is not enough [26], which indicates the need for further studies in this regard. On the other hand, differences in the statistical population, cultural characteristics, etc., may lead to newer findings or even contradictory to previous findings. In addition, due to some problems in psychological factors of veterans and disabled people and the determining role of psychological factors such as emotion regulation, perceived psychological stress, and psychological hardiness on psychological well-being and success in future lives, Identifying the factors affecting these components seems necessary. It is hoped that the results of this study can be used to complete the principles and theoretical framework for improving the health and quality of life of veterans and disabled people.

In general, Given the importance of psychological issues as one of the human concerns and the positive impact of physical activity on the physical and mental health and consequently on the quality of life of veterans and disabled and the disabled, contradictions in previous findings and the poor research background in this area, this study aimed to the comparison of the cognitive emotion regulation strategies, perceived psychological stress,

and psychological hardiness of athlete and non-athlete veterans and disabled and the disabled.

Instrument and Methods

This applied research was a post-event research that was conducted by a field study in 2021 and consisted of 100 veterans and disabled people (50 athletes and 50 non-athletes) in Yazd city. The individuals were selected by the convenience sampling method. After the necessary coordination, the researchers went to some stadiums and related centers and distributed the questionnaires among the people using the available sampling method (due to the impossibility of random sampling). The number of samples was calculated using G-Power software considering the effect size of 0.3, the first type error of 0.05, and the statistical power of 0.84. In this study, the active group consisted of people who participated in physical activities in parks, gyms, and recreation halls for at least one year and three times a week. In sports research, athletes are people who have been doing regular sports sessions three times a week for the past year (some articles are 6 months), which reference has been made [28]. The inactive group did not participate in sports activities. Inclusion criteria included no use of psychiatric drugs, no mental retardation, no disability of acute physical disorders, and completing the informed consent form in the study. The instruments used in this study included the following:

Demographic questionnaire: The questionnaire was researched made and used to collect general information (name, age, education level, disease history, physical problems. etc.) and was provided to the subjects.

The scale of Cognitive Emotion Regulation Strategies: This questionnaire was developed by Garnowski & Krajand includes two items of the general strategy of cognitive regulation of positive emotions (acceptance strategies, positive refocusing, refocus on planning, positive reassessment, and underplay) and cognitive regulation of negative emotions (blaming others, ruminating, catastrophizing). The questions have a 5-point Likert scale (from almost never=1 to almost always=5) and are scored in response to stressful and threatening life events. The validity and reliability of the Cognitive Emotion Regulation Questionnaire were confirmed, and Cronbach's alpha coefficient for subscales was obtained in the range of 0.78-0.93 [29].

Perceived stress scale: This scale was designed by Cohen in 1983 and measures thoughts and feelings about stressful events, control, overcoming, coping with stress, and the experienced stresses. The scale has 14 questions based on a 5-point Likert scale (none, low, medium, high, and very high) ranging from 0 to 4. The range of scores on this scale is from

0 to 56, and a higher score indicates more perceived stress. The instrument's validity has been confirmed, and its reliability coefficient has been mentioned more than 70% [30]. In Iran, the content validity of the scale has been confirmed by researchers, and its reliability has been reported above 70 [31].

Ahwaz Psychological Hardiness Scale: This self-report scale with 27 items was prepared and validated by Kiamarsi. Each item has four options: never, rarely, sometimes, and most of the time, the scores for each item are 0, 1, 2, 3, respectively. Some items of the questionnaire (6-7-10-13-17-21) are reversely scored, and the range of scores on this scale is 0 to 81. Achieving a high score indicates high psychological hardiness. The validity of the scale was confirmed by its manufacturers, and the alpha coefficients for the subjects were reported to be 0.76 [31].

This study was approved by the Research Commission of Yazd University. In addition, before conducting the research, the subjects were satisfied and ensured that the collected information would be confidential.

After data collection, descriptive statistics, including mean and standard deviation, were used. Data were analyzed using inferential statistics including the Kolmogorov-Smirnov test (to determine the normality of data distribution), Levin test (to determine homogeneity of variances), and the one-way ANOVA (to compare groups at different stages) with the significance level $p < 0.05$ through SPSS 25 software.

Findings

Athletes' veterans and disabled had a lower perceived stress and uncompromising strategies emotion regulation average than non-athlete veterans and disabled. However, athletic veterans and disabled had a higher average of the variables comprising emotion regulation strategies and psychological hardiness than non-athletic veterans and disabled (Table 1).

Table 1) Mean results of research variables based on the study groups

Variable	Athlete	Non-athlete	p-value
Perceived stress	26.06±8.41	30.08±10.12	0.033
Compromising emotion regulation strategies	35.38±7.24	33.68±8.86	0.296
Uncompromising emotion regulation strategies	23.98±7.44	27.46±6.56	0.015
Psychological hardiness	49.86±12.53	44.40±17.13	0.036

Based on the results, there was a significant difference between the uncompromising emotion regulation strategies ($F=6.149$; $p=0.015$), psychological hardiness ($F=4.51$; $p=0.036$), and perceived stress ($F=6.664$, $p=0.033$). Athletic veterans and disabled had significantly lower perceived stress and uncompromising emotion regulation strategies, and higher psychological

hardiness than non-athlete veterans and disabled. There was no significant difference between the two groups in the variable of uncompromising emotion regulation strategies ($p > 0.05$).

Discussion

Paying attention to the physical, psychological, social, and cultural health in any society and providing the necessary ground for a healthy life guarantees the health of a community for future years. Various factors affect the health and mental health of human beings, especially veterans and disabled, directly and indirectly. According to the World Health Organization, one of the most important factors is regular physical activity and exercise, and in general, adequate mobility [32]. According to the importance of the subject, this study aimed to investigate the effectiveness of sports activities on cognitive emotion regulation strategies, perceived psychological stress, and psychological hardiness of veterans and disabled and the disabled. The results showed a better situation in perceived stress, psychological hardiness, and uncompromising emotion regulation strategies in athlete veterans and disabled.

Although no research has been done on the effect of exercise on stress in veterans and disabled and the disabled, the findings are by Acosta *et al.* [22] and Benjamin & John [23]. Although the mechanisms by which exercise affects stress through exercise are not yet well understood, the scientific evidence has revealed the role of serotonergic, noradrenergic, and histaminergic systems in the beneficial effects of exercise on stress management. Physical activity improves the body's response to stress due to delays in hormonal responses. It improves the level of stress, anxiety, and depression, and in general, it has a positive effect on mental and psychological functions. The most important mechanism of the effect of exercise on reducing stress is due to increased brain endorphins and decreased adrenal cortisol [33], which leads to the beneficial effects of exercise on neurological and psychological disorders [34].

Veterans and disabled and the disabled often experience stressful and unpleasant situations due to special problems. When they exercise, they feel happy because of the chemicals released from the body, and regular physical activity seems to intensify these feelings. Exercise also shifts the person's attention from the negative to the positive and calming cases. The person substitutes more positive emotions, which can be a good explanation for this finding. Sports activities provide the conditions for the presence of a veteran and disabled person in a homogeneous group and increase the level of interaction between people in an active environment, as well as increase vitality and happiness in the individual. Therefore, more participation increases self-esteem and positive

emotions in these people. In other words, when veterans and disabled and the disabled are present in sports environments, due to many similarities between them, including physical and psychological characteristics, increasing physical activity leads to self-acceptance, self-esteem, and self-confidence and improving their psychological factors and helps the development of their mental and physical personality [35]. Exercise has a beneficial direct effect by body shaping and strengthening a person's sense of competence and effectiveness. During physical activity, a sense of self-worth is created in the person, and anger, depression, anxiety, and pain, are removed from the mind [32].

The results also showed that athletic veterans and disabled have higher psychological hardiness than non-athletes. As mentioned earlier, mental hardiness is related to mental health, so as a source of internal resistance, it reduces stress and prevents physical and mental disorders. It seems that sports activities can strengthen resilience and mental hardiness by increasing the physical and mental strength of the athlete and providing the ground for the emergence of talents and a better understanding of people's abilities [36]. It seems that when veterans and disabled and the disabled participate in sports activities for facing stress and excitement, self-acceptance is created and gives them more control to achieve success by observing physical activities and successes of other veterans and disabled people and their joy happiness. Research shows that athletes with high mental strength can make good decisions in difficult situations and perform their functions in the best possible way. Athletes with mental strength consider stressful situations a challenge and act as stable people with self-confidence and determination [5]. Studies have shown that athletes with higher mental hardiness experience less negative emotions [13]. The findings are consistent with Vaughan *et al.* [24] and Ramazani & Hejazi [36]. However, in Dirmanchi *et al.*, no difference was observed between resilience in athletes and non-athletes with spinal cord injuries; the reason for this difference can be a different type of studied samples [25].

The results showed a significant difference in maladaptive strategies between athlete and non-athlete veterans and disabled, while this difference is not significant in emotion regulation strategies. The finding is consistent with Akbarzadeh *et al.* [26] and is not consistent with Amiri [27]; one of the reasons for this discrepancy is the difference in the research sample. In today's society, recognizing and regulating emotions is an integral part of life. Therefore, people with a better ability to use emotional, cognitive regulation strategies benefit more from physical and mental health. It is also important to control and regulate emotions, especially in social situations. People naturally experience more emotion in these situations and

need to regulate emotions effectively and efficiently. According to the physical and mental problems of veterans and disabled and the disabled, negative emotions are likely to intensify and lead to a decreasing ability to manage emotional situations. In other words, considering that in emotion regulation, the function of effective components in changing or modifying emotional states is important; each negative emotion regulation strategy, due to its inconsistent nature, leads to the intensification of negative emotions. Also, considering the effects of the social situations and lived experiences of individuals in the effectiveness of emotion regulation strategies [37], placing veterans and disabled and the disabled people in homogeneous groups and the form of sports activities put them in appropriate interactive situations that role Which will play an effective role in regulating their emotions. Generally, self-regulation is defined as the ability to control, modify, and adapt one's emotions, impulses, or desires and as psychological efforts to control one's inner state, processes, and functions to achieve higher goals [38]. Therefore, when veterans and disabled enter sports environments and tournaments, they gradually replace negative emotions with positive ones and use appropriate strategies to extend to other emotional situations by observing how their peers express their emotions with enthusiasm. Studies show that the sports field has special conditions. Depending on the type of sport and the specific situation, the person transmits various psychological pressures and wide emotions to the athlete. People who are proficient in regulating their emotions can compensate for negative emotional states through unpleasant activities [39]. Managing these emotions leads to organizing and adapting to provocative situations. These people are likely to be more active in dealing with the environment and environmental factors creating such emotions, so they can better deal with emotions, impulses, and desires [26, 40].

The limitations of this study were the sampling method (convenience sampling), the limitation of the research to a specific city, the impossibility of examining the type of sports activity and its role in the studied variables. Therefore, we suggest conducting a more comprehensive study on the impact of sports activities with different geographical areas and comparing the results with the findings of this study. Also, due to the poor research history of this area on the veterans of the country and controlling the mentioned limitations in this field, further studies should be done in this area and psychological factors related to the physical activity of veterans and disabled.

Conclusion

The results showed that athletes' veterans and disabled have lower scores in perceived stress and uncompromising strategies and a higher score of

psychological hardiness. It is suggested to use appropriate planning for the active participation of veterans and disabled in regular physical activity to reduce perceived stress, increase psychological hardiness, improve emotion regulation strategies, and increase the quality of life by the authorities.

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Ethical Permissions: Before conducting the research, the necessary coordination was made with the officials of the Martyr Foundation of Yazd city. Also, after the initial evaluations and writing the proposal, the mentioned plan was approved by the Research Commission of Yazd University with the ethics code <https://ethics.research.ac.ir/IR.YAZD.REC.1400.069>.

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